

Appl. No.: 09/486,625  
 Filed: September 13, 2000  
 Reply to Communication of August 24, 2004

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**Amendments to the Claims:**

Claims 1-2 (Cancelled)

3. (Currently Amended) An isolated nucleic acid molecule comprising a nucleotide sequence encoding an attenuated, non-functional *vif* protein, wherein said nucleotide sequence encodes an Arginine in place of Proline at position 162 of SEQ ID NO:1.

4. (Currently Amended) The nucleic acid molecule of claim 3 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence ~~selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22 and SEQ ID NO:23.~~

5. (Currently Amended) The nucleic acid molecule of claim 3 wherein said nucleic acid molecule comprises a nucleotide sequence ~~selected from the group consisting of SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45 and SEQ ID NO:46.~~

Claim 6. (Cancelled)

7 (Original) A pharmaceutical composition comprising a nucleic acid molecule of claim 3 in a pharmaceutically acceptable carrier or diluent.

8. (Original) A recombinant expression vector comprising a nucleic acid molecule of claim 3.

9. (Currently Amended) The recombinant expression vector of claim 8 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence ~~selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7,~~

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~~SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13,  
SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19,  
SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22 and SEQ ID NO:23.~~

10. (Original) A host cell comprising a recombinant expression vector comprising a nucleic acid molecule of claim 3.

11. (Currently Amended) The host cell of claim 8 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence ~~selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22 and SEQ ID NO:23.~~

Claims 12-17 (Cancelled)

18. (Currently Amended) A plasmid comprising a nucleotide sequence encoding an isolated, attenuated, non-functional *vif* protein, wherein said nucleotide sequence encodes an Arginine in place of Proline at position 162 of SEQ ID NO:1.

19. (Currently Amended) The plasmid of claim 18 wherein said protein comprises an amino acid sequence ~~selected from the group consisting of SEQ ID NO:4, SEQ ID NO:5, SEQ ID NO:6, SEQ ID NO:7, SEQ ID NO:8, SEQ ID NO:9, SEQ ID NO:10, SEQ ID NO:11, SEQ ID NO:12, SEQ ID NO:13, SEQ ID NO:14, SEQ ID NO:15, SEQ ID NO:16, SEQ ID NO:17, SEQ ID NO:18, SEQ ID NO:19, SEQ ID NO:20, SEQ ID NO:21, SEQ ID NO:22 and SEQ ID NO:23.~~

20. (Currently Amended) The plasmid of claim 18 wherein said nucleotide sequence is ~~selected from the group consisting of SEQ ID NO:27, SEQ ID NO:28, SEQ ID NO:29, SEQ ID NO:30, SEQ ID NO:31, SEQ ID NO:32, SEQ ID NO:33, SEQ ID NO:34, SEQ ID NO:35, SEQ ID NO:36, SEQ ID NO:37, SEQ ID NO:38, SEQ ID NO:39, SEQ ID NO:40, SEQ ID NO:41, SEQ ID NO:42, SEQ ID NO:43, SEQ ID NO:44, SEQ ID NO:45 and SEQ ID NO:46.~~

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21. (New) The nucleic acid molecule of claim 3 wherein said nucleotide sequence encodes: a Tyrosine at a position corresponding to Histidine at position 27 of SEQ ID NO:1; a Glutamic Acid between amino acids at positions corresponding to Arginine at position 36 and Tryptophan at position 37 of SEQ ID NO:1; a Glutamine at a position corresponding to Glycine at position 44 of SEQ ID NO:1; a Glutamic Acid at a position corresponding to Histidine at position 59 of SEQ ID NO:1; a Threonine between amino acids at positions corresponding to Histidine at position 72 and Glycine at position 73 of SEQ ID NO:1; a Histidine at a position corresponding to Tyrosine at position 125 of SEQ ID NO:1; an Arginine at a position corresponding to Glutamine at position 134 of SEQ ID NO:1; a Serine at a position corresponding to Asparagine at position 138 of SEQ ID NO:1; and an Isoleucine at a position corresponding to Leucine at position 148 of SEQ ID NO:1.

22. (New) The nucleic acid molecule of claim 3 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:9, and SEQ ID NO:10.

23. (New) The nucleic acid molecule of claim 3 wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:32, and SEQ ID NO:33.

24. (New) The recombinant expression vector of claim 8 wherein said nucleotide sequence encodes: a Tyrosine at a position corresponding to Histidine at position 27 of SEQ ID NO:1; a Glutamic Acid between amino acids at positions corresponding to Arginine at position 36 and Tryptophan at position 37 of SEQ ID NO:1; a Glutamine at a position corresponding to Glycine at position 44 of SEQ ID NO:1; a Glutamic Acid at a position corresponding to Histidine at position 59 of SEQ ID NO:1; a Threonine between amino acids at positions corresponding to Histidine at position 72 and Glycine at position 73 of SEQ ID NO:1; a Histidine at a position corresponding to Tyrosine at position 125 of SEQ ID NO:1; an Arginine at a position corresponding to Glutamine at position 134 of SEQ ID NO:1; a Serine at a position corresponding to Asparagine at position 138 of SEQ ID NO:1; and an Isoleucine at a position corresponding to Leucine at position 148 of SEQ ID NO:1.

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25. (New) The recombinant expression vector of claim 8 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:9, and SEQ ID NO:10.

26. (New) The recombinant expression vector of claim 8 wherein said nucleic acid molecule comprises SEQ ID NO:27.

27. (New) The recombinant expression vector of claim 8 wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:32, and SEQ ID NO:33.

28. (New) The host cell of claim 10 wherein said nucleotide sequence encodes: a Tyrosine at a position corresponding to Histidine at position 27 of SEQ ID NO:1; a Glutamic Acid between amino acids at positions corresponding to Arginine at position 36 and Tryptophan at position 37 of SEQ ID NO:1; a Glutamine at a position corresponding to Glycine at position 44 of SEQ ID NO:1; a Glutamic Acid at a position corresponding to Histidine at position 59 of SEQ ID NO:1; a Threonine between amino acids at positions corresponding to Histidine at position 72 and Glycine at position 73 of SEQ ID NO:1; a Histidine at a position corresponding to Tyrosine at position 125 of SEQ ID NO:1; an Arginine at a position corresponding to Glutamine at position 134 of SEQ ID NO:1; a Serine at a position corresponding to Asparagine at position 138 of SEQ ID NO:1; and an Isoleucine at a position corresponding to Leucine at position 148 of SEQ ID NO:1.

29. (New) The host cell of claim 10 wherein said nucleic acid molecule comprises a nucleotide sequence which encodes an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:9, and SEQ ID NO:10.

30. (New) The host cell of claim 10 wherein said nucleic acid molecule comprises SEQ ID NO:27.

31. (New) The host cell of claim 10 wherein said nucleic acid molecule comprises a nucleotide sequence selected from the group consisting of SEQ ID NO:27, SEQ ID NO:32, and SEQ ID NO:33.

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32. (New) The plasmid of claim 18 wherein said nucleotide sequence encodes: a Tyrosine at a position corresponding to Histidine at position 27 of SEQ ID NO:1; a Glutamic Acid between amino acids at positions corresponding to Arginine at position 36 and Tryptophan at position 37 of SEQ ID NO:1; a Glutamine at a position corresponding to Glycine at position 44 of SEQ ID NO:1; a Glutamic Acid at a position corresponding to Histidine at position 59 of SEQ ID NO:1; a Threonine between amino acids at positions corresponding to Histidine at position 72 and Glycine at position 73 of SEQ ID NO:1; a Histidine at a position corresponding to Tyrosine at position 125 of SEQ ID NO:1; an Arginine at a position corresponding to Glutamine at position 134 of SEQ ID NO:1; a Serine at a position corresponding to Asparagine at position 138 of SEQ ID NO:1; and an Isoleucine at a position corresponding to Leucine at position 148 of SEQ ID NO:1.

33. (New) The plasmid of claim 18 wherein said protein comprises an amino acid sequence selected from the group consisting of SEQ ID NO:4, SEQ ID NO:9, and SEQ ID NO:10.

34. (New) The plasmid of claim 18 wherein said nucleotide sequence is selected from the group consisting of SEQ ID NO:27, SEQ ID NO:32, and SEQ ID NO:33.